

***The International Society for  
the Study of Dendrobatid Frogs***



***Bulletin of the ISSD  
March 1991***



## Notes from the Editors

The September issue will feature *Dendrobates leucomelas*. This appears to be a popular and easily breed taxon which hasn't previously been featured by the ISSD Bulletin and a wonderful picture has been submitted by Ed Oshaben. For the December issue we'd like to feature the dendrobatid frogs native to Costa Rica and Panama (exclusive of *D. auratus*) - mainly *Dendrobates granuliferus*, *D. minutus*, *D. pumilio*, *D. speciosus*, *Phyllobates lugubris*, and *P. vittatus*. Again little has previously appeared in the Newsletter about any of these taxa and a beautiful picture of *D. pumilio* has been submitted by Charles Nishihara. These special issues will not be possible without the input of you the reader. We do not have have any articles for the remainder of the year , so there will not be another issue of the Bulletin until enough material is submitted. Please get out your pen and start to write today.

---

---

### ISSD INCOME AND EXPENSES 01/01/90 THROUGH 12/31/90

| Income          |            | Expenses                             |            |
|-----------------|------------|--------------------------------------|------------|
| Membership      | \$2,000.00 | Newsletter (preparation and mailing) | \$2,177.02 |
| Back Issue sale | 700.00     | Office Postage                       | 117.76     |
| Miscellaneous   | 7.00       | Supplies                             | 30.84      |
| Total Income    | \$2,707.00 | Photographs                          | 106.22     |
|                 |            | Total Expenses                       | \$2,431.84 |
|                 |            | Net                                  | \$275.16   |

# ***Utricularia* - carnivorous plants for the dendrobatid terrarium.**

Charles Powell, II  
San Jose, California, USA

## **Introduction**

First, you may ask, what is a carnivorous plant? It is a plant which supplements its nutrient intake by capturing and digesting animals. Then you may ask, could these plants capture and eat my frogs? No, the traps of this genus are too small to eat anything much larger than a small fruit fly and most will capture prey considerably smaller. Lastly you may ask, why would I want these plants in my terrarium? The answer to this last question will be the basis for the remainder of this article.

The genus *Utricularia* consists of about 214 species

(Taylor, 1989) with a world wide distribution, occurring from the poles to the tropics. The only continent that does not have *Utricularia* is Antarctica. For the tropical frog hobbyists I would suggest species from the tropics as those from cooler regions often require a dormancy which cannot be provided in a tropical terrarium. A few species which may do well in the dendrobatid terrarium are outlined below.

*Utricularia* come in a wild variety of shapes and sizes and seem to be drawn together into a single genus only by the fact that they form small vacuum traps. The variations include leaf shape, size, as well as habitat, aquatic, terrestrial and others which form tubers to store water in times of drought. Aside from the very wide array of leaf forms the flowers are what draw most people to this particular group of plants.

It has been said, and rightly so, that the flowers of some



*Utricularia* rival many orchids.

### Cultivation

Because these plants grow in such a variety of habitats we can easily choose a few which should grow well in a tropical terrarium. Lighting within the terrarium is generally strong enough for growth of these plants as they are usually adapted to lower light levels in the areas where they grow. Soils should consist of either sphagnum (live or dead) or peat moss, with or without varying amounts of sand and perlite. The aquatic and semi-aquatic species can be grown in either very damp soil or in standing water. However, the semi-aquatic species should be rooted in the underlying soil while the aquatic forms are free floating in the water. The tuberous forms need a slightly dryer environment, although can be kept constantly damp, but not wet. I have found that attached to a branch or piece of wood is an

ideal site for these species. The remaining species can generally be grow in damp peat moss or sphagnum moss and must be kept moist to wet.

### Species descriptions

Outlined here are a few species which should grow well in your terrarium. I must admit that I have only tried a few of these in my terrariums, but the others grow well in conditions suited to dendrobatids in my greenhouse.

*Utricularia alpina*: This is a tuberous species which grows in mossy trees, rocks and banks in rain forests and sometimes on marshy ground in the wild. It occurs on various Caribbean Islands and in northern South America. It has wide strap shaped leaves up to 20 cm long, but generally smaller. Its flower is up to 3 cm tall and white with two yellow stripes leading down the lower lip of the flower.



*Utricularia asplundii*: This species is similar looking to *U. alpina*, but is smaller in all parts. It has a beautiful white flower, with a violet throat and two bright yellow stripes extending down the lower lip. In the wild it occurs on moss covered trees and banks in rain forests in western South America (Colombia and Ecuador).

*Utricularia bisquamata*: This is a tiny species which was previously known as *U. capensis*. It has very small grass like leaves and up to 8 flowers on a inflorescence as long as 3 cm. The flowers are small and lilac to violet in color with a yellow patch near the throat. It is native to southern Africa and Madagascar where it occurs by streams and in wet places in sandy or peaty soil and among mosses on wet rocks. When planted in your aquarium it will quickly spread and when it flowers there can be tens to hundreds of flower stalks present.

*Utricularia calycifida*:

This is another tuberous species and one which is rare in cultivation. It has spoon-shaped leaves which taper towards the base and which are as long as 15 cm, but generally shorter. This species has beautiful small mauve flowers on a scarp up to 15 cm high. It is native to Venezuela, Guyana, and Surinam where it occurs in wet places in forests and open savanna. This species is more tolerant of shade than most species of *Utricularia*.

*Utricularia geminiloba*: This is a wonderful species with heart-shaped leaves held upside down on a thin stem. The stem and leaf vary in size from about 1 cm to 20. Again this species is very rare in cultivation, but is likely to become more common as it is propagated by carnivorous plant enthusiasts. The flowers are large, blue-violet with yellow at the base of the lower lip. It is native to South America, generally around Rio de Janeiro. It occurs



on wet, often vertical rocks, but has also been reported from sphagnum bogs.

*Utricularia humboldtii*: New to cultivation, this species is particularly interesting as it commonly grows from the center of bromeliad vases. It is a large plant with leaves up to 20 cm long, which are rounded to paddle shaped and sit on the end of a long stem. The flower is very large for the genus and blue-violet with two yellow lines which fade to white on the lower lip. It occurs throughout the Guayana Highlands (Venezuela, Guyana, and northernmost Brazil) of northern South America, generally at high attitudes (300 m to 2,500 m) where it occurs in the leaf axils of a few species of *Brocchinia*, as an epiphytic on trees, or aquatic or terrestrial in shallow water in open savanna.

*Utricularia livida*: A very small to medium-sized terrestrial plant (up to about 2 cm) with

leaves that range from grass-like to oval on a short stem. For such a small plant the flower spike can be very long, up to 80 cm on some forms. The flowers are usually pale to dark violet with or without a yellow blotch at the base of the lower lip. It has a very peculiar range occurring in tropical and southern Africa (including Madagascar) and also in Mexico. No explanation for this disjunct distribution has been suggested and this is the only species of *Utricularia* with such an unusual distribution. The habitat of this species is permanently or seasonally wet bogs and shallow wet soil.

*Utricularia longifolia*: This is an excellent starter plant for the tropical frog terrarium. It is very easy to grow and readily available from many growers of carnivorous plants. As the name suggests the leaves can be quite large, although the leaves of most forms are around 15 to 30 cm long, some



plants have been reported with leaves 115 cm long! The flowers, which occur on an inflorescence as long as 100 cm, are moderately large (up to about 3 cm) and are violet with an orange-yellow blotch on the lower lip. Please realize that the sizes given in this article are a maximum and growth in your terrarium (or greenhouse) will generally be much smaller. This species is found in Brazil where it usually occurs among wet rocks often with *Sphagnum* and less frequently in wet grasslands.

*Utricularia nephrophylla*:

A small species with semi-circular to reniform shaped leaves which are generally up to 1 cm tall. This minute species is easily recognized because the upper surface of the leaves are minutely pustular. The flowers are large for the leaf size and are white sometimes tinged with mauve with two yellow stripes on the lower lip. This species is again

found in Brazil where it is often found on rocks in montane forests.

*Utricularia praelonga*: A medium to large species with long, thin leaves which may be up to 20 cm long while being less than 1 cm wide. The flowers are yellow and of moderate size with up to 7 flowers occurring on an inflorescence that may be as long as 1 m. This plant is native to South America occurring in Brazil, Paraguay and northern Argentina, where it occurs in wet savannas, marshes, and by streams.

*Utricularia reniformis*:

Another interesting species which reminds one of *U. humboldtii*. This species comes in a large variety of sizes with leaves (including the stem) which can be up to 65 cm tall. These leaves consists of a round to reniform leaf blade up to 14 cm wide sitting on a tall stem. The flowers are large (up to about 4 cm) and blue-violet in color with two yellow



stripes on the lower lip. Again from Brazil this beautiful species is usually terrestrial in wet grasslands and among rock but sometimes occurs in the water-filled leaf axis of bromeliads.

*Utricularia sandersonii*: A small South African species with few ovate leaves. The interesting feature of this species is its wonderful, abundant flowers, which resemble small white rabbits heads. A wonderful starter plant that is easily grown and readily available and will quickly grow throughout your terrarium.

*Utricularia subulata*: A small grass like species this is another which will thrive in moist to wet conditions. You may never see the leaves, but when in flower you will be amazed by the hundreds of small, yellow flowers which decorate your terrarium. It is an annual (meaning that it will die after flowering), but it readily starts again from the seed it drops. It is pan-tropical in distribution

occurring even along the east coast of the United States from Massachusetts to Florida and east to Texas; it favoring any wet sandy area.

## Sources

Sources for these plants are limited as they are only grown by people who are interested in carnivorous plants (cp). I would suggest trying Lee's Botanical Gardens (12731 SW 14th St., Miami, FL 33184) or CP's CPs (2932 Sunburst Dr., San Jose, CA 95111). In England contact The Carnivorous Plant Society (c/o John Watkins, 98 Earls Court Rd., London W8 6EG, England) and in Germany contact G.F.P. (Rolf-Deither Goitthardt, Adenauerstrabe 13, 7303 Neuhausen a.d.F., Germany) for sources of *Utricularia* in Europe. Please realize that several of the above species are rare and you probably won't be able to find them for sale, at lease for a while.



## Acknowledgements

I would like to thank Dr. Dale Bertram, Dr. Jack Frenkel

and Mary McGann for reading the manuscript and suggesting many improvements.

---

# *Vriesea* - A wonderful genus of the family Bromeliaceae for the dendrobatid terrarium

Thomas Bille  
Denmark

Any terrarium with dendrobatids must not lack bromeliads. The frogs use them both as hiding and sleeping places, but also as a location for breeding. Some species like *Dendrobates pumilio* and *D. histrionicus* have specialized their breeding regime to use only bromeliads.

A lot of different kinds of

bromeliads are available, but plants of the genus *Vriesea* seem to be an excellent choice. This genus, which contains about 284 species, are mostly epiphytic and are distributed in Central and South America. They have many advantages to the dendroculturists, such as large cups (which are good hiding places for both larval and adult frogs), come in a variety of size from the very large *V. tessellata* to the very small *V. racinae*, and they are beautifully colored (at least most of them).

A few species which might prove useful to dendroculturists are indicated below:

*Vriesea corcovadensis*: This species grows to a high of about 20 cm (8 inches). It's pointed leaves are dark green in color and the plant develops a beautiful red inflorescence (flower



stalk) with flowers which have pink sepals and white petals.

*V. tessellata*: A very large species, which with its inflorescence grows to a height of 2m (80 inches). It has broad blue-green leaves with a reticulated pattern of darker lines. The underside of the leaves are pale scarlet and the inflorescence is green with green sepals and pale yellow petals.

*V. hieroglyphica*: This is one of the most beautiful *Vriesea*, although it gets rather large. The leaves are up to 60 cm (24 inches) long and are banded, while the rosette may be up to 1 m tall. The flowers of the inflorescence are yellow.

*V. racinae*: This is one of the smallest species in the genus, growing only to about 10 cm (4 inches) tall - it is therefore suitable for small terrariums. It has green leaves with brown spots on the underside. The flowers on the spotted inflorescence are huge and

whitish-green in color.

*V. scalaris*: Differs from all other species is having a hanging inflorescence which has red and yellow flowers. It has broad pale green leaves and grows to about 15 cm (6 inches) tall.

*V. splendens*: This is probably the most famous of the *Vriesea*. It has dark green leaves which are banded with dark brown. The red inflorescence gets up to 80 cm tall with yellow flowers.

*Vriesea* are generally epiphytic and therefore, in the terrarium, should be kept either on branches or in hafted coconut shells, which can be hung in the terrarium. Make sure to spray them with water often, but it is not necessary to fertilize them as they will get enough nourishment through your animals and dead insects. If kept well *Vriesea* will be a delight for both the animals and viewers.



## ISSD MEMBERSHIP LIST - 1991

| Name                       | Address   |
|----------------------------|---|
| Baird, Denis P.            | 9725 S. Keeler - A201, Oaklawn, IL 60453                            |
| Berger, John               | P.O. Box 23109, Honolulu, HI 96822                                  |
| Bertram M.D., Dale T.      | One Virginia Terrace, Madison, WI 53705                             |
| Bille, Thomas              | Rorlokken 100, DK-2730, Herlev, Denmark                             |
| Braun, Wolf Dietrich       | Flachsweg 4, D-1000, Berlin 38, Germany                             |
| Burke M.D., Robert W.      | 712 D Street Suite G, San Rafael, CA 94901                          |
| Burnet Park Zoo - Zoo Lib. | 500 Burnet Park Drive, Syracuse, NY 13204                           |
| Burres, Erick              | 4316 N. Decatur, No. Las Vegas, NV 89130                            |
| Cameron, John              | 526 Sunset Dr., Seguin, TX 78155                                    |
| Chatterton, Terry          | 8007 Ridge Road, Arvada, CO 80002                                   |
| Chernoff, Al               | 1336 Magee Ave, Philadelphia, PA 19111                              |
| Clark, J. Andrew R.        | 2835-23A Street N.W., Calgary, Alberta, T2M-3Y6, Canada             |
| Conant, Jon                | 1796 Alta Vista Dr., Vista, CA 92084                                |
| Cover, Jack                | 704 Sharps Court, Fallston, MD 21047                                |
| Crill, Wayne D.            | 2206 25th Avenue E., Seattle, WA 98112                              |
| D & M Herpetocultural Ent. | c/o Philippe de Vosjoli, P.O. Box 76, Lakeside, CA 92040            |
| David, Patrick C.          | Rt1 Box 548, Azle, TX 76020   |
| Davies, Robert W.          | 5 Richards Road, Standish, Wigan, WN6 OQU, England                  |
| Dipl. Biol. Rainer Schulte | Biofarm SRL, Apartado 258, Tarapoto, Peru, S. America               |
| Driscoll, John             | 57 Braemar Drive, Elk Grove Village, IL 60007                       |
| Duellman, William E.       | Museum of Natural History, Univ. Of Kansas, Lawrence, KS 66045-2454 |
| Duval, Derek S.            | 445 So. 44th Street Apt. 1, Philadelphia, PA 19104                  |
| Duval, Julian              | c/o Indianapolis Zoo, 1200 W. Washington St, Indianapolis, IN 46222 |
| Fanzlaw, Charlie           | 28550 Avenida Gaviota, Quail Valley, CA 92380                       |



|                             |  |
|-----------------------------|--|
| Freed, Paul                 | 4206 E. Villa, Houston, TX 77017                               |
| Frenkel M.D., J.K.          | 10030 El Monte, Overland Park, KS 66207                        |
| Freund, Bruce               | 695 Buttonwood Ln., Miami, FL 33137                            |
| Gerendasy, Lewis            | 11-15 45th Avenue 4-J, Long Island City, NY 11101              |
| Gleisner II, George R.      | 115 S. Randall Ave., Madison, WI 53715                         |
| Guyette, Chance             | 495 Ave F SE, Winter Haven, FL 33880                           |
| Haiduck, Lisa               | 148 Sherron Ave., Salem, NJ 08079                              |
| Halfpenny B.S.C., Steven C. | 37 Cronton Lane, Widnes, Cheshire, WA8 9AR, England            |
| Healy, Sean                 | 3324 Yorktown Street, Sarasota, FL 34231                       |
| Henry Ph.D., Raymond T.     | 3458 Monroe Avenue Apt 7, San Diego, CA 92116                  |
| Hernandez, Max              | 36863 Ash Street, Newark, CA 94560                             |
| Hoag, Lynn                  | 211 West Aurora Road, Northfield Center, OH 44067-2006         |
| Hoigne, Leo                 | 1515 Eastbrook Drive, Sarasota, FL 34231                       |
| Holmes, Eugene W.           | 706 W. Eleanor Place, Peoria, IL 61604                         |
| Howard, Kyle                | 4409-15th, Lubbock, TX 79416                                   |
| Hulmes, David               | 122 Second Avenue, Hawthorne, NJ 07506                         |
| Hummel, Stephen             | 1742 Hartford Tpke. North Haven, CT 06473                      |
| Johnson, Derrick            | 445 W. Barry Apt 514, Chicago, IL 60657                        |
| Jorgens, Dirk               | Eisvogelweg 27, W-1000, Berlin 37, Germany                     |
| Keane, Peter                | 1018 E. 226 St., Bronx, NY 10466                               |
| Kellner, Dr. Henry          | Trumbull Animal Hospital, 6537 Main Street, Trumbull, CT 06611 |
| Kestler, Rowe               | 2150 Oak Ct., Naperville, IL 60565                             |
| Key, Ronald Lee             | P.O.Box 121, 1017 Hwy 61, Whitsett, NC 27377                   |
| Knip M.D.Ph.D., Agatha S.   | Hildegardde 14, 3155 VC, Maasland, Netherlands                 |
| Kulp, Kenneth P.            | 1722 Route 197, Woodstock, CT 06281                            |
| Lee, Wilson                 | 1544 Jones St., San Francisco, CA 94109                        |
| Lejfelt-Sahlen, Anna        | Tiundagatan 37, S-752, 30 Uppsala, Sweden                      |
| Luz, David W.               | 598 Dott Street, Pennsburg, PA 18073                           |
| Maercks, Owen               | c/o East Bay Vivarium, 1827C 5th Street, Berkeley, CA 94710    |



|                                |   |
|--------------------------------|---|
| Mailloux, R. E.                | 2002 Morgan Lane, Redondo Beach, CA 90278                           |
| Malolepsy, Shawn Eric          | 5041 Van Buren, Yorba Linda , CA 92686                              |
| Mangan, John                   | 9770 Oleander Ave., Vienna, VA 22181                                |
| Marshall, Larry                | 1239 Park Ave., Chicago Heights, IL 60411                           |
| Martin Jr., Billy              | P.O.Box 5311, APSU, Clarksville, TN 37044                           |
| McCready, Alan M.              | 4529 Marble Way, Carmichael, CA 95608                               |
| McGowan, Edward J.             | Virginia Zoological Park, 3500 Granby Street,<br>Norfolk, VA 23504  |
| Merkel, Jane                   | 3407 Manhattan Ave., St. Louis, MO 63143                            |
| Meyer, Eberhard                | Mecklenburg Weg 43, D-7900, Ulm-Bofingen,<br>Germany                |
| Mollus, Steven M.              | 1925 Wank Ave., St Joseph, MO 64507                                 |
| Monk, Brian Christopher        | P.O. Box 1027, Hampden-Sydney College,<br>Hampden- Sydney, VA 23943 |
| Moran, Matthew                 | 12533 Creek Dr., Ocean City, MD 21842                               |
| Mui, Phillip                   | 256 W. 24th Street , Chicago, IL 60616                              |
| National Aquarium in Baltimore | Pier 3, 501 E. Pratt St., Baltimore, MD 21202                       |
| Nilsson, Nils-Olof             | Uarda Vagen 38A, S-22371, Lund, Sweden                              |
| North, Art                     | 14822 Van Buren St., Midway City, CA 92655                          |
| Novotny, Raymond               | 840 Old Furnace Rd., Youngstown , OH 44511                          |
| Olsson, Bengt-Olof             | Folkskolegatan 5, 117 35, Stockholm, Sweden                         |
| Orth, Kenneth                  | P.O. Box 102, Jose De Diego St. #76, Aguadilla,<br>P.R. 00605       |
| Oshaben, Ed                    | 10669 Jubilee Drive, Chardon. OH 44024                              |
| Palmer, Christopher B.         | 356 North Jefferson, Zeeland, MI 49464                              |
| Peaker, Malcolm                | Hannah Research Institute, Ayr, KA65HL,<br>Scotland                 |
| Peel, David                    | 1251 Bexley Dr., Youngstown. OH 44515                               |
| Perlow, Mitch                  | 1110 Caspian Lane, Houston, TX 77090                                |
| Perreira, William D.           | P.O. Box 61547, Honolulu , HI 96839                                 |
| Peterson, H. Wm.               | One Riegel Oaks Lane, Homewood, IL 60430                            |
| Peterson, Joyce                | 6425 So. Clarendon Hills Rd #308, Clarendon<br>Hills, IL 60514      |



|                              |   |
|------------------------------|---|
| Petzke, Paul                 | 1955 E. Grovers #3, Phoenix, AZ 85022   |
| Piechottka, Joachim          | Postfach 7463, D-2250, Husum, Germany   |
| Polzin, Paul E.              | 2102 University Ave. Apt BD , Madison, WI 53715                                 |
| Powell II, Charles L.        | 2932 Sunburst Dr., San Jose, CA 95111   |
| Ranheim, Robert              | 19 Caleb Brewster Rd., East Setauket, NY 11733                                  |
| Read, Michael B.             | 1144 Athens Ave., Placentia, CA 92670   |
| Reichard, Tim                | 619 Diehl Avenue, Bethlehem, PA 18015   |
| Richards, Charles            | 10735 Double D Rd., Fountain, CO 80817  |
| Richards, John               | 1 Morgans Cottages, Whimble Exeter, Devon, EX5 2SP, England                     |
| Robertson, Ian D.            | 16 Leaside Way, Greenwood 6024, W. A., Australia                                |
| Robins, Scott                | 21 Kristin Dr. Apt. 529, Schaumburg, IL 60195                                   |
| Rogell, Bjorn                | Langlotsvagen 8B, 172 37 Sundbyberg, Sweden                                     |
| Rychlinski, Robert A.        | 341 Hiolani St., Pukalani , HI 96768-8422                                       |
| Sandbom, Lars-Erik/B. Zoo    | Bandhagsplan 2, S-124 32, Bandhagen, Stockholm, Sweden                          |
| Scott, Robert                | 7981 N. 43rd St., Augusta, MI 49012   |
| Sell, Bill                   | 45 East 28th Street 3Fl., New York City, NY 10016                               |
| Shaw, Eric                   | 6427 Forward Pass Trail, Tallahassee, FL 32308                                  |
| Shrom, Michael               | 24 East Chestnut St., Ephrata, PA 17522   |
| Snelling, Gordon C.          | 329 1/2 W. Palm Ave., Monrovia, CA 91016  |
| Soderberg, Ulf               | Lekevalis Gatan 57, 43169, Moindal, Sweden                                      |
| Soukup, Ing Milan/Dept Path. | Faculty of Med./Charles U., U nemocnice 5, Nove Mesto, Prague 2, Czechoslovakia |
| Sprenger, Daniel             | 1700 Sunset Blvd #12, Houston, TX   |
| Strueber, Malte              | Flachsweg 11, 1000 Berlin 38, F.R.G., Germany                                   |
| Taylor, Carl R.              | 501 West End Ave., McMinnville, TN 37110  |
| Townsend, Ted                | 508 Pease, Bryan, TX 77803-4550   |
| Tremper Jr., Philip A.       | 911 Lilac Ln., Joliet, IL 60435   |
| Tunstall, Edward             | 2320 W. Palomino Dr., Chandler, AZ 85224  |
| Van Heygen Guy, H.           | Mechelsesteenweg 229, B-2580, St. Katelyste-Waver, Belgium                      |



|                  |   |
|------------------|---|
| Vecchio, Tony    | Roger Williams Park Zoo, Elmwood Avenue,<br>Providence, RI 02905                            |
| Waldron, Steven  | 2081 Nobili Ave., Santa Clara, CA 95051   |
| Wattley, Jack H. | 2500 Sea Island Dr., Fort Lauderdale, FL<br>33301   |
| Wess, Ralf Arno  | Mailaender Str. 12/111, D-6000, Frankfurt 70,<br>Germany                                    |
| West, Justin     | 16 Clark St., Saratoga Springs, NY 12866  |
| Wevers, Erik     | Rijssensestraat 70a, Wierden, 7642NL, Holland   |
| Zeitz, David C   | 1119 Brooke Rd., Seat Pleasant, MD 20743  |
| Zwoferink, Hans  | R. Bosmastraat 62, 7462 MO, Wijssen, Holland<br>KS 66045-2454                               |
| —                | Departamento de Herpetologia, Museo de Historia<br>Natural, Apartado 14-0434, Lima 14, Peru |

---



---

## Want Adds

Michael Shorm (24 E. Chestnut St., Ephrata, PA 17522, USA) has National Geographic Magazines with the following articles for sale, at \$7ea including postage, or trade for other herpetological articles.

“Capturing strange creatures in Colombia” (Marte Latham’s 12 pp. article on collecting dart-poison frogs and other strange creatures in Columbia; May, 1966).

“Teeming life of a rain forest” (This issue contains 79 pp on rainforests including Carol and David Hughes 18 page article, above, with excellent pictures of *Dendrobates granuliferus* and *D. pumilio*; January 1983)..

“The amazing frog-eating bats.” (A 14 pp article on Merlin Tuttle’s study on frog eating bats at Barro Colorado, Panama. Does not deal directly with dendrobatids; January, 1982).



## -New Literature-

Bertram, Dale, 1989, Dart-poison frogs: some general husbandry principles. The Journal of Northern Ohio Association of Herpetologists, 15(1): 1-13.

Caton, Mary, 1984, Poisonous frogs. South American Explorer, 11: 32-34, October.

Crump, Martha L., 1991, You eat what you are. Natural History, 1991(2): 46-51.

(While not dealing with dendrobatid frogs the article examines the advantages of cannibalism as a means for producing larger and faster growing tadpoles. It outlines a set of experiments which could be performed on dendrobatid frogs that might produce larger, stronger offspring.)

Donnelly, Maureen A., Guyer, Craig, and de Sa, Rafael O., 1990, The tadpole of a dart-poison frog *Phyllobates lugubris* (Anura: Dendrobatidae). Proceedings of the Biological Society of Washington, 102(2): 427-431.





Photo courtesy of Ed Oshaben

*Dendrobates leucomelas* Fitzinger in Steindachner

*Dendrobates leucomelas* is found in Venezuela, although it has also been collected in Brazil and Guyana. Most typical Venezuelan specimens are jet black with three, rather broad, transverse bars of yellow, often infused with black. Specimens from Hacienda San Felipe, Venezuela sport bright orange, rather than yellow bars. Adults range in size from 30mm - 38mm (SVL). Females typically are slightly larger than males. Males can often be distinguished from females by slightly larger front extremity toepads.

It is one of the more popular species among collectors because it is relatively easy to obtain and also, it is relatively easy to keep and breed.





## The Blue Frog Emporium

### Finally, a dart-frog T-Shirt really worth having!

This 100% cotton shirt is produced by the Blue Frog Emporium and is the first in a series. The front of the shirt features a four-color process photograph of *Dendrobates azureus* (not a drawing). The photo is surrounded by a bright blue border. Above the photo, the name "*Dendrobates azureus*" appears in crisp blue letters edged in black. Beneath the photo the common name "The Blue Poison-Dart Frog" appears in the same type. On the back of the shirt there is a quotation by the famous Bronx Zoo ornithologist, William Beebe.

*"...when the last individual of a race of living things breathes no more, another heaven and another earth must pass away before such a one can be again."*

The shirts are available by mail order for \$17.00 each. Special prices are available to herpetological societies wishing to use the shirts for fund raisers. Wholesale prices are available to legitimate retailers upon written request. ISSD members use purchase order enclosed with newsletter.



# Bulletin of the ISSD

---

☐

IF THIS BOX IS CHECKED - YOUR MEMBERSHIP FEE IS DUE

Membership dues are as follows: \$20.00 for members living in the U.S.A. and Canada; \$25.00 for members living in Europe and South America. For members holding a personal checking account with a U.S. bank, a personal check will suffice. For those who do not have an account with a U.S. bank, payment should be made using one of the following methods (listed in order of preference): 1.) A U.S. Postal Money Order made out in U.S. dollars. 2.) A Cashier's Check from a U.S. bank, or a U.S. affiliate of a non-U.S. bank, made out in U.S. dollars. 3.) A Cashier's Check from a non-U.S. bank made out in the usual currency of the bank of issue, for an amount which will yield \$28.00 (U.S. \$) when it is exchanged. 4.) Cash - U.S. dollars, wrapped well so that it cannot be seen through the envelope and sent via registered mail. Remittance should be sent to:

Edward Tunstall  
ISSD Secretary/Treasurer  
2320 Palomino Drive  
Chandler, Arizona  
U.S.A. 85224